EROSDATA
U.S. GEOLOGICAL SURVEY, NATIONAL MAPPING DIVISION
EROS DATA CENTER, SIOUX FALLS, SD

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Professional Services Unified: The People Behind the Badges

Eleven-member Team Secures Property and Grounds

It's 3:40 a.m. on a Sunday and all is quiet on the EROS front. There are no leaking or frozen water pipes. No intoxicated drivers wandering on the grounds. No firearms being discharged on the property. No stray animals. No people with diabetic reactions. No equipment to check after a power outage. No traffic to direct. No visitors. No employees. It's tar black outside as 2 EDC security officers methodically patrol the halls and grounds of the EDC. Twenty-four hours a day, 7 days a week (including holidays) the EROS security team "protects the persons and property" within the boundaries of the Data Center. It's not a dirty job, but it's lonely. It's not stimulating, but it's varied. One minute it's quiet. The next, it's chaos. Such is the work of Professional Services Unified (PSU) security guards at the EROS Data Center.

PSU Officer in Charge Chuck Randall fields a telephone call while observing monitors linked to EDC's 5-camera security system.

About PSU

Just so there's no confusion for Nittany Lion fans, PSU is not the acronym for Penn State University. PSU stands for Professional Services Unified. It's a company headquartered in Tacoma, WA with contracts (mostly with the Federal government) in six states: Washington, Colorado, Utah, Idaho, California, and South Dakota. EDC's 11 security officers are among over 300 men and woman PSU employs to provide contract support services such as: security, food service, and janitorial services. EDC security officers feature a hodgepodge of past job experience. Some officers have farmed, policed, taught school, or served as fire fighters. Knowledge, skills, and abilities critical to these occupations also come in handy for security work as well. "While common sense is important in any job," explains **Chuck Randall**, EDC security officer in charge, "it's really important in this job because many times what you have to do isn't set in stone. Things pop up and you must make decisions when there may not be a rule to govern your decision." All security guards receive close to 40 hours of security education prior to pinning on

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INSIDE

FYI:

Because of a recent cost-savings initiative covering newsletters published by the U.S. Department of the Interior, present and future issues of EROSDATA will be printed using only one color of ink.

UP FRONT

Lately, it seems one major event stacks up right behind another. The pace never seems to slow down and the changes at the Center become increasingly obvious.

It was only a week or so after the ground breaking ceremonies when Gil Haugan Construction started to work on the new building addition. Before the steel work begins, 2000 truck loads of earth will have been moved. The excavation for the addition will equal that needed for over 200 average home basements. Additionally, over 28,000 cubic yards of engineered fill will have been brought in for the new base. Plans call for enough of the structure to be up before changing weather so work can continue through the winter. Soon work areas on the southeast side of the building (Customer Services, UNEP/GRID, Science and Applications) will be moved to accommodate construction. During this transition period, we will have to endure some major relocations and inconveniences—which I hope we all can handle without too much difficulty.

One of the reasons for the expansion of the Center is a changing approach to our funding. In the past few years, we have made a deliberate move to increase our reimbursable funding. We have worked hard to respond to the needs of cooperating agencies. Major cooperators, such as the National Aeronautics and Space Administration, Department of Defense, Environmental Protection Agency, and Agency for International Development, have supported our activities because you have worked hard to provide to them the best possible products and services.

The results have been dramatic. Reimbursable income has grown, just since 1991, from almost one-third to nearly one-half of our total Center annual budget. In a recent letter to all USGS employees Director Gordon Eaton singled out the EDC example,"...it is clear to me that such cooperative efforts will be even more critical in responding to the earth science questions the American public wants answered." He challenged all USGS employees to look at the EDC example and learn from it. This approach to program management is not without risk, but it also provides new challenges and opportunities such as the expansion of our facilities.

Donald T. Lauer

Construction Progress Rolls Ahead of Schedule

Building Addition

Thanks to cooperative weather construction progress on the building addition (LPDAAC) is "excellent" according to EDC Center Operations Manager **Dennis Hood**. The only problem Gil Haugan Construction has unearthed so far are soils with a high concentration of clay. "The soils are so clay-filled they dry out slowly so there are quite a few dump truck loads of soil (approximately 60,000 cubic yards) which need to dry and be spread," explained Hood.

As of August 1st, all of the excavation work for the LPDAAC was complete. With excavation completed, the construction crew focussed on forming foundation footings. After the footings were in place, steel girders began to pop up. Optimistically, the present plan calls for steel structure and reinforcement to be in place by the end of October. According to Hood, this will allow construction crews to work on an enclosed area when snow begins to fall. "They'll be able to work on the lower level while erecting steel on the upper level except during the coldest of times." The target date to complete the first level of flooring in the LPDAAC is the end of November.

While 60,000 cubic yards of soil have been excavated to accommodate the new building, another 14,000 cubic yards of sand, rock, and gravel (about half of what will finally be needed) have been trucked in as engineered fill. This translates into 2,000 dump truck loads of fill, with only 2,000 more to go before the project is completed.

Basement Renovation

While LPDAAC construction builds, basement renovation slowed during late June and all of July because of a retaining wall associated with the building addition. Once this wall was in place and backfilled with soil, work on the crawl space returned to full strength. "We have two smallish concrete pours using a crawler and a big bucket," said Hood. "As soon as those pours are complete, we'll form up the rest and do large pours (4,000 square feet at a time). Then the electricians and plumbers will do their work pretty quickly."

Other developments in the basement renovation project include the sprinkler system and elevator. A

contract is now in place for the sprinkler system while the elevator is out for bids. "It appears that Gil Haugan Construction is going to wait to impact the offices on the outer wall until as late in the project as possible," explained Hood. "That is a blessing because that will give us more time to rearrange internally." Originally scheduled for completion Oct. 1st, renovation of the basement crawlspace should be completed mid-to-late October because of the retaining wall delay.

Safety

While safety has always been a priority at the EDC, the events of Wednesday, June 8th served to further heighten this issue. At 7:15 that evening, a VESCO employee and a contractor employee hired to cut an opening for an elevator fell from the main floor to the basement. "We have contracted with OSHA inspectors associated with South Dakota State University to help us identify areas where we still need to do some work to comply," said Hood. "Safety practices at EDC have been excellent. People are very safety conscious. The accident probably heightened that consciousness, particularly at upper management levels." While only one person was treated and released with minor injuries, that's one too many. This unfortunate accident reminds all of us of the importance of safety in the workplace. It's an issue all EDC staff must recognize and continuously build upon.

VESCO Summerhire Jason Eitreim applies a coat of white paint to beams and pipes as part of the the EDC basement renovation project.

So far, so well...

According to Hood the few conflicts associated with both construction projects are a result of scheduling problems, which have been settled amicably. "So far we have no change orders in the major project, and that's very unusual," noted Hood. "Gil Haugan and his folks continue to be a pleasure to work with and the advice and guidance we're getting from Spitznagel is excellent. Everyone is working together and it's really a team effort. It's rolling right along."

Gil Haugan Construction workers huddle during a July morning amid the activity and noise of heavy equipment used to excavate the site for the Center's LPDAAC addition.

Myron Joneson, Dell Rapids, and Harold Joneson, Valley Springs, drive a pair of giant Percheron draft horses May 31st during Groundbreaking ceremonies. Following the antique sodbuster are (l. to r.) Dr. Don Lauer, Congressman Tim Johnson, Senator Larry Pressler, Dr. Al Watkins, Senator Tom Daschle, and Al Schock.

Mysterious Madagascar

EDC Begins 2-year, $1.3 Million Conservation Project

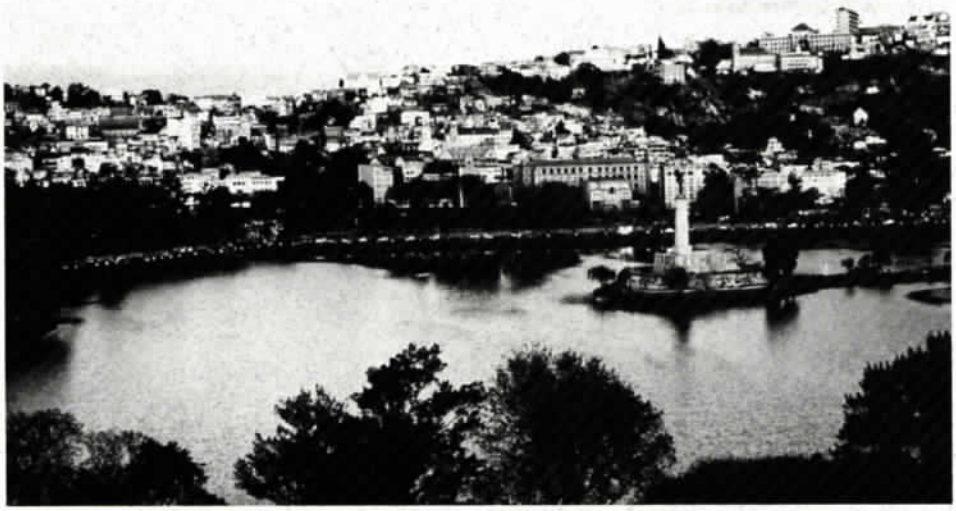
Seventy-five percent of Madagascar's 200,000 species of plants and animals are found nowhere else on Earth. Because of its significant level of biodiversity and many indigenous species, it's considered by many conservationists as "the single highest conservation priority in the world." EDC remote sensing and environmental scientists, under the auspices of our International Program, embarked on this research project last March to establish technical support in image processing and geographic information systems (GIS) to monitor biodiversity in Madagascar.

Madagascar Background

Before examining the Madagascar project, let's look at the obscure island of Madagascar. While Madagascar is a huge island of contrasts, it's best described as "the land that time forgot," according to Australian journalist Robert Willox. Time forgot Madagascar because geologic forces severed it from the African continent 165 million years ago. Located roughly 200 miles east of Mozambique, Madagascar's isolation caused the evolution of many unique biological species. Madagascar's terrain is as varied as its wildlife. It ranges from rainforest to desert and high plateau to tropical islands.

Island Facts:

- Madagascar stretches 1,000 miles long and 280 miles wide (roughly the size of Texas) - making it the fourth largest island in the world after Greenland, New Guinea, and Borneo.
- It's highest point rises 9,500 feet above sea level.
- The island houses over 12 million people.
- While Madagascar's ground transportation network is poor, Air Madagascar 737s criss-cross the island.
- Per capita income is less than $200/year.
- Malagasy people are more Indonesian or Asian than African because of the migration of these people to the island over 1,000 years ago. The Asian influence is reflected in the architecture of the capital city of Antananarivo (pop. 1.5 million) and the rickshaws wheeling through its streets.
- Madagascar features an economy based on agriculture with its major export being spices.
- While French is the island's official language for business, Malagasy is the primary language people use to communicate on the street.
- The Malagasy people disinter their dead ancestors (those buried 10-50 years) and parade them down streets in a ritual to revisit them. After a few days, the corpses are re-wrapped and re-buried.



Downtown view of Madagascar's capital city, Antananarivo, looking across Lake Anosy.

The Madagascar Mission

The Madagascar project is carried out under a Participating Agency Service Agreement (PASA) between the USAID and the USGS. The purpose of the PASA is to provide support to an organization in Madagascar called ANGAP - a French acronym for a non-government organization (NGO) called the National Association for the Management of Protected Areas. "Madagascar's rainforest has been depleted dramatically in the last 200 years by human activity," explains **Jim Verdin**, leader of the Madagascar Project. "Depletion of the rainforest destroys habitat for many of Madagascar's native species and plants. So, a network of protected areas has been, and continues to be set up to conserve the biodiversity."

ANGAP desires GIS technology to collect data and build data bases to manage 50 protected areas in Madagascar. The EDC's role will be to provide the necessary hardware, software, and training. According to Verdin, EDC staff wasted no time making an initial visit to the island nation. "The PASA began March 1 and we were on our way March 6th," says Verdin. "We visited with people at ANGAP, the protected area operators, and important organizations cooperating with ANGAP to see what's needed to complete their information systems."

Inherent Problems

According to the four EDC scientists involved in the Madagascar Project (**Jim Verdin**, **Jim Rowland**, **Andrew Nadeau** and **Gray Tappan**), several challenges exist. A major concern is Madagascar's unusual Laborde map projection. "This (projection) is unique in the world - unique to Madagascar," explains Verdin. "For example, if you collect Global Positioning System (GPS) data in Madagascar, the lat-long coordinate read-out presumes the use of the WGS-84 datum, which isn't the base datum of the Laborde system. This can lead to location errors of 250 meters." In addition to the researchers mentioned previously, **Dan Steinwand**, S&AB, and **John Snyder**, USGS/Reston, cooperated to develop coordinate transformation software, which is currently being field tested in the protected areas by people using GPS. Another difficulty is the 9-hour time difference between South Dakota and Madagascar, which makes it nearly impossible to telephone people during normal working hours. "We're lucky though," says Verdin, "We can send E-mail to USAID in Madagascar. That is a major, major step forward compared to the AGRHYMET project."

In addition to map projections and communication barriers, CSB hardware engineer **Jon Merchant** faces a heterogeneous electric power system. "There are three different types of power," explains Merchant, " – a 110 with no ground, a 110 with a ground, and then a standard 220. There's no national standard, not even within the capital city."

Because of the massive amount of hardware and software setup and training needed to get the Madagascar project humming, many EDC staff are involved. During the early months of the project, the people called on now include Science & Application Branch scientists Jim Verdin, the Project Leader, Andrew Nadeau, Jim Rowland, Gray Tappan, and Dan Steinwand. The Computer Services Branch provides Jon Merchant. **Brian Granneman**, **Gayla Evans**, and **Kelly Feistner** of the Digital Data Production Service (DDPS) staff are preparing image maps for protected area operators in the field.

Endangered Plant & Animal Species

Madagascar's rainforest remnants today continue to be adversely impacted by human activities. Verdin says this problem stems from age-old Malagasy agricultural practices. "As population comes from lower elevations, they continue to hack at the rainforest. There's a very strong cultural tradition among the agricultural people of Madagascar to make clearings in the rainforest, burn it off, and grow upland rice. Once the soil is depleted, they move on and do it again." The slash-and-burn process rapidly drains soils of nutrients – in most cases as soon as 2 years. Since humans arrived on Madagascar nearly 2,000 years ago, they have contributed to the extinction of many forms of wildlife by destroying rainforests.

Why Study Madagascar?

The EDC International Program relishes the opportunity to take part in the Madagascar project because of the biodiversity/conservation theme. It is really EDC's first chance to address international conservation issues. "Other international projects have dealt with ag-meteorology, famine vulnerability, food security, land degradation, and things of that nature," says Verdin. "It's still tech transfer," adds Andrew Nadeau, "but, it's quite different because the goal is to build an elaborate data base and put a system in place on the island so they can monitor their own resources."

The EDC and several U.S. conservation groups and universities are working in Madagascar for many reasons tied to our well being. For instance, nearly half of all prescription drugs dispensed in the world contain natural ingredients from wild plants. Madagascar's rainforests provide powerful disease-fighting agents as well as elements useful for many industrial products such as gums, resins, waxes, spices, and pesticides.

Despite Madagascar's unique land, plants, and animals, much of the nation remains a mystery. However, Madagascar is no secret to the global scientific community because of its 150,000 species of plants and animals found no where else on Earth. It's no secret global environmentalists see Malagasy rainforests as vital puzzle pieces that combine with others worldwide to reduce the effect of global changes on climate and species extinction. Conservationists know Madagascar's mysterious rainforests absorb huge amounts of carbon dioxide - a greenhouse gas which promotes global warming. And that is why mysterious Madagascar could be the world's best kept secret!

Pristine montane rainforest surrounds a quiet stream in the Perine Nature Park, home to at least six species of early primates called Lemurs.

SAST Activities Continue to Flood EDC

by Charlie Trautwein

Since the Scientific Assessment and Strategy Team (SAST) left EDC on March 11th, its primary offsite activity has been to prepare a document summarizing its data gathering efforts, data analyses, conclusions, and recommendations for additional studies. After several months of reviews and revisions, the final version of this report recently went to press and will be published as a companion volume to the report of the Interagency Floodplain Management Review Committee (IFMRC). EDC's **Sharon Warycka**, Technical Writing Specialist for the SAST, and **Pat Jaggie**, SAST Secretary, invested many fun-filled hours in this effort and are in large part responsible for the high quality of this report. EDC staff should be forewarned, however, that Sharon has become a bit sensitive to uninformed and repetitive use of the phrase "only a minor modification." Other EDC contributors include **Jesse Nelson** (maps), **Darla Larsen** and **Jan Nelson** (illustrations).

Also during the past several months, many additional SAST products have been developed at EDC for briefings, the IFMRC, SAST members and agencies, and affiliated users. These products include: a video overview of SAST activities at EDC produced by **Lee McManus, Mark Barber**, and, **Don Becker**; numerous map products for the IFMRC produced by **Bob Klaver**, **Kent Lethcoe**, and Jesse Nelson; an on-line SAST "home page" data access interface developed by **Sue Alstad**, **Dave Greenlee**, **Mike Neiers**, and others; and a portable (workstation based) demonstration of SAST database contents developed by Bob and Jacie Klaver, Jesse Nelson, and others. **Jacie Klaver** also presented a poster describing the SAST database and clearinghouse concept at the Annual ESRI Conference in Palm Springs during this period.

Other recent and current SAST activities are related to database management, dataset quality checks and verification, project staffing, and development of project plans, requirements, and budgets for Fiscal Year 1995. Kent Lethcoe, **Ron Risty**, and **Charlie Trautwein** facilitated a SAST Levee Database Workshop at EDC in June to review the current content, extent, and accuracy of levee datasets captured and compiled for the SAST at EDC. This event also provided a forum to discuss longer-term database requirements with representatives from the U.S. Army Corps of Engineers, USDA Soil Conservation Service, and Environmental Protection Agency. Current database management activities and dataset verification efforts are in accordance with our development of and participation in a network-based, federal clearinghouse for SAST and other digital spatial datasets. Continued database development, analyses, and product generation and implementation of the clearinghouse will be major project activities in FY95.

Employee News

U.S. Geological Survey

Jeff Eidenshink - Jeff enters Government duty as a Remote Sensing Scientist and Project Leader for EDC's Global Land 1-km AVHRR Data Set Project. Jeff is a 13-year EDC vet who holds a M.S. in Geography from SDSU. Originally from Sioux Falls, Jeff and his family live in Brandon. In his spare time, Jeff enjoys Missouri River Walleye fishing, woodworking, and coaching youth sports.

Jim Sturdevant - Jim is the EDC's representative on Dr. Al Watkins' team reviewing the NMD's mission and organizational structure.

Walt Brandner - USGS Director Dr. Gordon Eaton recognized Walt's loyal dedication by signing an award honoring his 30 years of service to the Federal government.

Bruce Quirk - Bruce returned to the EDC July 15th from the Goddard Space Flight Center after a 3 year stint as liaison for the EDSPO. Quirk has been assigned to be the Acting Deputy Chief of the SAB.

Kristi Herman - joins the Science and Applications Branch as a Computer Specialist in support of the Research Program's MRLC Monitoring System. Herman is a familiar face to the EDC. She previously worked in the SAB as a Government Co-op Student. Herman is a May 1994 graduate of the South Dakota School of Mines & Technology. She holds a B.S. in Math and a minor in Computer Science. Kristi enjoys biking, walking, and other summer sports.

Rob Quenzer - Rob is a Q-student who joined PBA the week of April 11th. He will be working as a part-time computer clerk during the school year and full-time this summer. Rob is in his 4th year of Computer Science courses at SDSU. He will graduate in May of 1995. Originally from Mitchell, Rob enjoys playing golf, fishing, hunting, and riding mountain bikes. His workstation is located in the area adjacent to Walt Brandner's office.

Nancy Holzapfel - Nancy joins the Science and Applications Branch as a Government Q-student. Holzapfel attends Augustana College. She will graduate in 1995 with a B.S. in Computer Science and Management Information Systems. Nancy is a member of the Augustana Concert Band and also tutors other Augustana computer science students. In addition to the EDC, Holzapfel works at Sunshine Food Markets in Customer Service.

Visiting Scientist Program

Limin Yang - Limin joins the Science & Applications Branch as a Visiting Scientist to support the EDC Global 1-km Land Characterization project. Yang is stationed at the EDC by the University of Nebraska-Lincoln. Limin earned a B.S. in Geography from the Capital Normal University, Peoples Republic of China, a M.S. in Geography from Portland State University, Portland, OR, and a Ph.D. in Climatology and Remote Sensing from the University of Nebraska-Lincoln. Yang also is a research fellow with the Integrated Survey Commission of Natural Resources, Chinese Academy of Science. Originally from Beijing, Peoples Republic of China, Limin and his wife, Jane Zhang, live in Sioux Falls with their daughter, Linda. Away from the office Limin enjoys basketball, volleyball, and table tennis. He won three table tennis championships at the University of Nebraska from 1988 to 1990.

John Lewis - John is a professor and land surfaces processes expert from Canada who started at the EDC in mid-June. John will be at EDC through mid-December to perform a technical review of the international projects and perform a thermal inertia study of Africa. John earned a Ph.D. (1972) from the University of Illinois in Biometeorology. From 1970-75 he taught at the University of Maryland and consulted for the USGS Geography Program in Reston. Lewis moved to McGill University in 1975, where he is a Professor in the Geography Department and a founding member of the Center for Climate and Global Change.

Larry Tieszen - Larry has arranged through the Nature Conservancy Mellon Foundation for a 2-year position to work on land characterization. This position started July 1994.

Bruce Wylie - is a visiting scientist working with Larry Tieszen and Brad Reed on mapping landscape patterns and biodiversity. The work is scheduled to take place over the next 2 years and include several Nature Conservancy bison grazing reserves in the Tall Grass Prairie and Sandhills of the centeral United States. Wylie's experience includes extensive work in Niger, Africa for several successive range projects. Wylie holds degrees in Range Science from the University of Montana (B.S. 1979) and New Mexico State University (M.S. 1989, Ph.D. 1991). Bruce and his wife, Mariama, have three children: Ami (13), Bruce (10), and Ray (8).

Hughes STX

Ken Boettcher - Ken has been selected as the HSTX Deputy Project Manager. He replaces Gary Johnson who moved to the Science and Applications Branch to become Science Manager.

Judy Goetz - works as a secretary for Center Services. Judy's experience includes work as a job developer at East Dakota Educational Cooperative and a learning center specialist at Olsen Computing. Goetz attended Grandview College and Drake University, Des Moines, IA 1969-70 and Des Moines Area Community College, 1977-79. Originally from Rockwell City and Des Moines, Judy now lives in rural Sioux Falls where she enjoys crafting, decorating, and riding Harley Davidson motorcycles with her husband, Daryl. You can welcome Judy in the PBA secretarial area.

Jesse Nelson - Jesse works in the Data Exploitation technical area as a scientist supporting SAST activities. Nelson generates map products from the STATSGO data base as well as other environmentally descriptive data sets. No stranger to the EDC, Jesse worked as a physical science technician with the Science and Applications Branch since January 1993. Nelson recently received his M.S. in Geography from SDSU.

Bill Schaefer - Bill joins Customer Services as a file clerk. Bill was graduated in December 1993 with a B.A. degree in Geography from SDSU. Originally from Crooks, SD, Schaefer enjoys all sorts of sports as well as traveling with friends. Bill is a member of the Colton amateur baseball team.

Nancy Schultz - Nancy is a secretary in Information Services. She attended the Job Training Institute in 1988. Her interests include PC hardware and software, stereo/TV/VCR recording and editing, reading, and walking. Born and raised in North Carolina, Nancy moved to Sioux Falls during an April snow storm in 1975.

Kim Allington - Kim joins External Relations as a part-time receptionist. She is originally from Sioux Falls.

Thomas Crawford - Tom comes to the EDC from work as a foreign service Officer with the U.S. Agency for International Development in the Caribbean and Africa. Crawford is a principal scientist and project leader for the management information system project in Zimbabwe. Originally from the "Left Coast", Tom earned an A.B. in Religion (1969) from the University of California-Berkeley. He added a M.S. in Ecology (1972) and Ph.D. in Soil Science (1980) from the University of California-Davis. In addition to spending time with his three daughters and wife, Crawford enjoys bicycling, hiking, and listening to shortwave radio.

Jacqueline Klaver - Jacie accepted a senior scientist position with the Data Exploitation technical area in support of the SAST activities. Klaver has supported the SAST since January in a temporary position.

Tom Senden - Tom accepted an offer to work with the Data Exploitation group to support SAST activities. Senden joined the Data Center's CSB in 1979.

Mike Choate - Mike joins the Sensor Systems Technical Area as a scientist to support EDC projects requiring geometric and radiometric modeling expertise, such as MRLC, NALC, topographic data set development and special activities such as the EDC Level-1 Prototype System (ELIPS). Mike earned B.S. (1990) and M.S. (1993) degrees from SDSU in Electrical Engineering. Choate comes

to Sensor Systems from the DLG-E Annex in Sioux Falls.

UNEP/GRID

Lori Kleifgen - Lori serves with the GRID Office as a Visiting Fellow through EPA support. Originally from New England, Kleifgen spent 8 years in Resource Management with the National Park Service in Colorado, Arizona, and New Mexico. She taught college courses at Yavapai College, Prescott, AZ and just completed a 2-year stay at the Center for Remote Sensing and Mapping Sciences at the University of Georgia, Athens, GA.

Jennifer Sharpe - Jennifer supports the GRID Office as an EPA Visiting Fellow. Born and raised in Carbondale, IL, Jennifer received a B.A. in Geography from Miami University, Oxford, OH. Currently, she continues to work on her M.A. in Geography at the University of Nebraska-Lincoln.

Awards:

The following Federal employees received awards in recognition of their performance this past year:

PB&A
Genny Austin
Carolyn Hieb
Dan Wray
Arlys Johnson
Don Zoller

CSB
Dave Hair
Tom Kalvelage

S&AB
Charlie Trautwein
Dave Carneggie
Doris Johnson

OC
Mary Lou East

EDSPO
John Boyd
Lyn Oleson
Bruce Quirk
Jane Westegaard

In addition to the above awards for performance, **Viola Ross** received a promotion.

Tom Loveland, **Jess Brown**, **Don Ohlen**, and **Brad Reed** are the First Prize recipients of the 1994 Earth Resources Digital Applications Software (ERDAS) Award for their paper titled, "Using Multisource Data in Global Land-Cover Characterization: Concepts, Requirements, and Methods." These four EDC staff members co-authored the scientific paper with **Jim Merchant**, University of Nebraska-Lincoln. This is the second consecutive year EDC scientists have been recognized as award-winning writers by ERDAS. Last year **Joy Hood** and **Bruce Quirk** collaborated with another USGS scientist to take Third Place in the same competition. As First Prize recipients, Loveland and Co. will divide a $500 stipend and receive hand-embossed certificates.

ESRI selected **Sue Jenson** and **Kevin Larson's** Africa DEM map for the cover of its annual map book. This map also was used as a backdrop for the stage at the annual users group meeting May 23, 1994.

ASPRS also honored **Tom Loveland** with the **Alan Gordon Memorial Award** for his scientific contribution in remote sensing and photo interpretation.

The following letters are from EDC Oldtimers who wrote paragraphs about the early days of the EDC but arrived too late to include in the Commemorative Issue of EROSDATA published for the 1994 Groundbreaking, May 31, 1994. EROSDATA apologizes to the following letter writers but would still like to share their recollections with our readers.

Woody Yaroch - Administration

I arrived in Sioux Falls on July 26, 1973; approximately 2 weeks prior to a scheduled open house at the Data Center. Offices were still downtown preparing to move into the new facility. My first job was to help coordinate the Open House event. I went to the new facility to be greeted by the security guard under hire by the building contractor. He was a very thin man with teeth missing in the front of his mouth. His gunbelt hung by his side and kept shifting to his rear as he walked so that he could not sit down without shifting his gun holster to the side. Luckily, I had a Geological Survey ID or he would not have let me in. The Open House occurred on August 8 (I believe) and it was very, very hot. Hundreds and hundreds of people came to see this futuristic space building and of course there wasn't much to see but a big, empty building. I moved into the building shortly after the Open House to help get the new furniture into the right places. The cafeteria was not open yet, (in fact, I was negotiating with the South Dakota Society for the Blind on how the cafeteria would operate), so I would go to Garretson for lunch and try to convince the local clientele that there was nothing underhanded going on at EROS because they were convinced it was to be a spy operation. Those were interesting days.

I also remember how frustrated we were with the roof leaking problems shortly after we moved in and the problems we had with the warranties. I have many other memories in the early days in placing people either with the Government or the contractors; getting approval from the Director of Personnel, Office of the Secretary, Department of the Interior for a Recreational Association, which included Government and contractor personnel - a first for the Department of the Interior; plus all the other ramifications of a contractor type operation - of which the Survey or the Department knew how to handle - so it was up to the Senior Staff to show them how we wanted to operate - as a unit without regard to affiliation - as a DATA CENTER.

Bill Campbell - Data Management

I arrived at the EDC in October 1971, about the same time as several other early arrivals, so I remember well the temporary downtown offices. A few of the highlights, that I remember of those early days, were the first shipment of satellite data that was received at the EDC from Goddard (Space Flight Center), the move from downtown to the existing facility, and numerous trips to the Johnson Space Center in Texas. But mostly I remember lots of good people who worked at the EDC. I extend my best wishes to all of you at the EROS Data Center as you expand the facility and work your way into the new century. I'm sure it will be an exciting time for each of you.

EROS Data Center Milestones

Anniversaries of EDC Employees

Retirees
Eunice Flanagan, PBA
Carol Van Winkle, PBA
Kris Constant, PBA
Chuck Greco, CSB

20 Years
Dan Traut, DSB
Bill Winn, DSB
Danielle Ehlen, DSB
Dana Larsen, DSB
Rick Vandersnick, DSB
Dave Eitreim, PBA
Bob Vandenoever, CSB
Ken Boettcher, HSTX Project Office
Chuck Luden, DSB
Fred Waltz, SAB
Jack Scott, CSB
Janet Steenson, DSB
Ivan Seubert, DSB
Russ Hanken, PBA
Linda Hansen, DSB
Mark Driscoll, DSB
Earl Ohlsen, DSB
Chuck Wentler, PBA
Vicki Turbak, DSB
Lou Ogren, CSB
Doug Brock, PBA
Jan King , VESCO
Walt Brandner, PBA
Dave Carneggie, SAB
Dennis Hood, PBA
Don Lauer, OC
Gary Metz, OC
Terry Pfannenstein, PBA
Wayne Rohde, OC
Ron Beck, PBA
Sue Jenson, SAB

15 Years
Tim Smith, DSB
Sue Mattson, DSB
Pat Johnson, DSB
Judy Austad, DSB
Cheri Mahood, DSB
Mary Chmela, CSB
Ramona Stansell, DSB
Kelly Feistner, DSB
Tom Senden, DSB
Peggy Keegan, SAB
Gary Nelson, CSB
Dick Heinemann, CSB
K.C. Wehde, DSB
Diane Aspaas, CSB
Ilene Olmstead, CSB
Jeff Martens, VESCO
Mark Petersen, VESCO
Larry White, VESCO
Jolynn Dyce , VESCO
Laurel Lamb, VESCO
Arlys Johnson, PBA

10 Years
Terry Tronson, PBA
Doug Hollaren, CSB
Laurie Huewe, CSB
Ken Gacke, CSB
Kim Rinehart, CSB
Janet Howe, DSB
Jon Merchant, CSB
Barb Larson, CSB
John Hunhoff, CSB
Ray Teske, HSTX Project Office
Carl Markon, AFO
Blaine Ailts, CSB
Luann Pfeifle, SAB
Gerald O'Toole, PSU
Rod Beck, VESCO
Doug Binnie, DSB

5 Years
Carl Moschell, DSB
Ron Smith, SAB
Linda Block, DSB
Brent Clark, CSB
Tim Baltzer, CSB
Mark Shasby, AFO
Jane Westegaard, EDSPO
Carolyn Hieb, PBA
Tom Loveland, SAB

Projects

· CSB staff copied its 13,000th MSS tape to a smaller, computer cassette tape format on July 14th – 1 week ahead of its projected target date. Congratulations in duplicate!!!

· DSB and CSB implemented the first of four phases of the National Digital Cartographic Data Base (NDCDB) Sales Data Base for the USGS/NMD. Phase 1 DORRAN was implemented May 28, 1994. DSB estimates the final phase, Phase 2 GLIS, will be completed around August 1995. The NDCDB Sales Data Base project is the EDC's first significant role in a NMD mainline data operation.

Did You Know?

UNEP/GRID - Sioux Falls Facility Manager, Dr. Ashbindu Singh visited the Alaska Field Office July 7-8 to discuss UNEP North American programmatic connections to Alaska.

Senior Remote Sensing Scientist Thomas Loveland began his Mendenhall lecture series on July 18th in Reston, VA. He plans to lecture at USGS facilities in Menlo Park, CA, Denver, CO, Flagstaff, AZ, and Anchorage, AK.

Sensor Systems Scientist Joy Hood visited Reston, VA in July to participate in the MRLC consortium where she trained on the software tools for classification and met with NMD Chief **Dr. Al Watkins**.

The Japanese Ministry of Construction offered to send UNEP/GRID-Sioux Falls a scientist for 1 year to work on the development of the global land characteristics data base.

UNEP/GRID-Sioux Falls presented a talk called "Internationalizing GAP" at the U.S. National Biological Survey sponsored meeting on the Human Dimension of GAP in Portland, OR in April.

UNEP/GRID-Sioux Falls presented a paper titled, "UNEP/GRID and Global Warming Mitigation" at the 5th Global Warming International Conference and Exposition in San Francisco, CA last April.

Land Scientists Jess Brown, Brad Reed, Don Ohlen and Tom Loveland, along with Jim Merchant, Associate Director of the Center for Advanced Land Management Information Technologies (CALMIT), University of Nebraska-Lincoln, are First Prize recipients of the 1994 Earth Resources Digital Applications (ERDAS) Award for co-authoring the "Best Scientific Paper in Remote Sensing."

OSHA presented the EDC with a formal safety violation notice. Management is taking the allegations very seriously and responded to each

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PSU
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their badges, but training continues as long as they work at the Center. "It's continuous because things change so quickly around here," says Randall.

EROS Security features 11 professionals who offer a wealth of professionalism and protection. Two of the eleven security officers, **Ken Johnson** and **Dave Dravland**, have guarded the EDC for over 15 years. Another two, **Gerald O'Toole** and **Chuck Randall**, have over 8 years experience in protecting EDC property and grounds. While 55% of PSU employees nationwide are women, the EDC features three female security officers: **Shirley Van Raam**, **Annette St. Clair**, and **Theresa Lee**. The rest of the Security team includes **Alan Frevik**, **Ed Koens**, **Brad Matthiesen**, and **Gale Larson**.

Security and law enforcement work have been described as hours of monotony interrupted by minutes of exhilaration. Security officers at the EDC never get bored because their positions offer so much diversity. For instance, EDC security officers prod wandering prairie predators (i.e., skunks) back to crop fields, track severe weather, monitor property entering and leaving the Center, operate Civil Defense radio equipment, report safety hazards, respond to fire and tornado alarms, provide medical assistance, monitor building system alarms, jump start vehicles, and other acts of assistance to help visitors or employees (i.e., getting some fuel for someone who runs out of gas). "What I like about the job is the variety and assisting people," says Randall. "For example, a guard found a wedding band that an employee lost 6 months ago. The employee was very happy to get that back."

PSU & VESCO: Partners in Prevention

For a little variety on the job, how would you like calling someone at home in the wee hours of the night with some bad news. If it's 3:40 a.m. on a Sunday morning and PSU staff discover a roof leak or another type of maintenance emergency on one of their rounds, they don't hesitate to call **Robin Hermanson** or **Bill Nelson**. "We rely heavily on Robin and Bill because if we have a chiller go down or another system failure, they'll come right over day, night, holiday...never complain...and fix it." According to Hermanson, VESCO is extremely dependent on PSU staff as well. "There have been so many times when they have discovered a maintenance problem before it did major damage. They do a good job of protecting the building from things that can go wrong."

Absolutely nothing is wrong with the new office area which serves as the new base of PSU's security operation. The new office area next to the Employee Entrance is the biggest boost to security since the Data Center opened in 1972. With added space, privacy, and viewing ability, the new location provides an excellent base for all security activities. "**Dennis Hood** was instrumental in relocating us in this office," says Randall. "It's greatly improved security because we can view the parking lot through our window and TV monitors. This provides better security to people going back and forth to their cars especially during late nights or weekends. We have privacy to speak and can have confidential papers lying on the table without people standing there reading them. I just can't tell you how much better this setup is for us."

While PSU security officers provide human observation, they constantly monitor the EDC building and grounds with several types of electronic surveillance devices, including motion detectors, video cameras, and computerized card key alarms. "We have five adjustable cameras we can use to move or zoom in on locations in-or-outside of the building," explained Randall as he clicked a switch to demonstrate the cameras' lens wiper and defogger. EROS Security will receive a new camera system to monitor the Center once the addition is completed in 1996. The eight-camera system will be connected to VCRs to provide 24-hour recording. In addition to expanded electronic surveillance equipment, more officers will be added to the security staff to safeguard the EDC after the LPDAAC addition is completed.

EDC security guards are a dedicated, close-knit team of professionals who take pride in their work. By exercising common sense, they provide blanket protection for Federal property, the EDC grounds, – and most importantly – **you**.

Did You Know?
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violation August 8th. HSTX and VESCO also received letters from OSHA concerning the violation.

A member of the Mongolian parliament visited EDC in July. He was very impressed with the Center and will have the Remote Sensing Ministry from Mongolia contact SAB staff.

EDC volunteers, led by Brenda Jones, Gayla Evans, Karla Sprenger, Andrew Nadeau, John Faundeen, Kent Hegge, Sharon Hagen, Mary Lou East, Dick Cole, and Sue Mattson, served 304 hungry people at our annual evening at the Banquet in July in Sioux Falls. The next major project for the Banquet is the collection of school supplies, which will be handed out in early September.

Twenty-two people took part in the first annual Litter Patrol after work July 18th. The clean up crew, headed by Jim Fenno, picked up debris along a two mile stretch of Highway-121 from 252nd Street (the EROS road), south to 254th Street.

Printed on recycled paper using Envirotech inks containing soy oil.

The EDC and NBS: Cooperative Opportunities & Challenges

The National Biological Survey (NBS), established in 1993, performs long-term research and monitoring of the nation's biological resources using remote sensing/spatial technologies while working in cooperation with other Federal and state partnerships. The NBS mirrors the U.S. Geological Survey in that both Department of the Interior agencies work to provide unbiased, earth science information without hidden political agendas. Before the NBS was established several Federal agencies had their own biological staffs. A single, science-based source of the nation's biological resources, free from political interests, did not exist. The NBS aims to provide unbiased biological research without being affected by the special interests of agency politics.

The NBS Operational Approach

The NBS carries out its mission through four U.S. regions: the Eastern, Midcontinent, Western (including Alaska) and Southern. Each region has expertise in certain areas. For example, the Midcontinent Region specializes in contaminants.

Since the mission of the NBS is to work in cooperation with other Federal and state agencies, is there a partnership that can be established and matured between the NBS and the EDC? While it's too early to get a comprehensive picture, the answer appears to be **"YES"** from both potential partners.

"I see a lot of opportunities between the NBS and EDC," says **Tom Owens**, a cartographer with the National Biological Survey's Environmental Management Technical Center (EMTC) in Onalaska, WI. "One of the NBS's major programs now is the Gap Analysis Program, which uses a lot of satellite data acquired through the EDC.

Tom Owens

Other EDC programs such as the global change program and the AVHRR greenness program will be major aids in the Gap Analysis Program. So, we're already using a lot of EDC's expertise and we'll continue to use it in the future."

Mark Laustrup, a geographer and colleague of Owens at the EMTC in Onalaska, says the technology available at the EDC will be critical to the missions of several NBS regional facilities. "Given the problems with staffing and Government cutbacks, I don't think all of the ecoregions have the capability (i.e., expertise, hardware, software) to do the work, so I think there's an opportunity there for some type of cooperation because the big push is for the use of digital, spatial data. The most expensive part about doing any kind of digital spatial analysis is populating the data base. EDC is well-equipped to do that. From my experience, the prices are very competitive."

Mark Laustrup

Laustrup and Owens come from a well-staffed, well-equipped NBS facility in its 7th year of operation. Prior to becoming a member of the NBS, the EMTC was affiliated with the U.S. Fish & Wildlife Service. It's part of the long-term resource monitoring program, which evolved as a result of the tradeoffs associated with the construction of locks and dams on the Mississippi River between St. Paul and St. Louis. The EMTC is a facility that houses 40 scientists specializing in disciplines such as water quality, sedimentology, biology, ecology, botany, geography, and cartography to monitor water quality, vegetation, fish, and invertebrates at six field stations throughout the system.

"The nice thing about EDC is that I'm only 5 hours away," said Laustrup. "We're using EDC's data brokerage service right now. The people I'm working with want some hard copy images to evaluate the possibility of using satellite data to look at different water levels and their impact. They don't want to jump into it before they know it will work. I can drive over and work with Ron Risty to customize the product. EDC's very cooperative."

An EDC staffer who has put more than a little thought into the NBS/EDC equation is Science and Application Branch cartographer **John Hutchinson**. According to "Hutch," the EDC is involved in the Gap Analysis Project in other ways as well. "I'm working with the NBS Cooperative Research Unit at the College of Natural Resources, Utah State University, to make a set of maps to accompany the Gap report for the state of Utah. Four maps of Utah will be produced. A Thematic Mapper image map is nearing completion, to be followed by maps of Land Ownership, Vegetation, and Species Richness, all at a scale of 1:750,000."

The EDC is coordinating between the remote sensing and wildlife management researchers in Utah and the designers and graphic standard experts who produce maps at the USGS in Reston. "Because we have a foot in both worlds – research and mapping –," explains Hutchinson, "the EDC is well equipped to aid this work. My job has been to assemble the data created at Utah State into a form the map production units at the Mapping Applications Center can use to make the map."

So the number of cooperative opportunities and challenges in remote sensing and wildlife management for EDC and NBS staff appear to be many and varied. In the words of Rick (Humphrey Bogart) at the end of the movie Casablanca, "This could be the beginning of a beautiful friendship."

EDC's Budget Bursts with Reimbursables

Since 1979 EDC's reimbursable income has soared nearly $10 million! That's more than the entire 1975 ($8.3 million) EDC budget. This is a real mind-bender when you consider EDC's current operating budget balances between $30-31 million a year. So, the bottom line is – reimbursable income accounts for a smidgen under 50% of EDC's annual budget.

While nearly half of the Data Center's budget comes from sources of reimbursable income, the remainder comes from a chunk of change known as Federally appropriated funds. This is a pot of money the Executive Branch of Government submits to Congress for approval based on a rather taxing experience for all of us.

So the EDC budget features two major sources of income:

- **Federally appropriated funds,**
- **and reimbursable funds.**

The Center relies on reimbursable funds. "Reimbursable income," explains PBA's **Wayne Miller**, "is money that is not given to us (EDC) directly through Congressional channels. It is money from other Federal agencies or the public for products and services supplied by the Data Center.

While EDC's 1994 operating budget teeters between $30-31 million, nearly $5 million augments the EDC budget in 1994 (and $4 million in 1995) to construct the 60,000 square foot building addition. "Our budget at the Center is changing because our reimbursable income continues to increase," said Miller.

EDC's funding sources are diverse and can change quickly. This trend is illustrated by the dynamics of the reimbursable income from 1979-1994 (see graphics below).

Bean Counters Don't Count Happiness

While it's been said that farmers are never happy because of too little or too much rain, or low grain or livestock prices, budget people seem to corner the market on gloom and doom. "I don't think budget people are allowed to be happy," says Miller trying to keep a straight face. "They always look at the next year as doom and gloom. Sometimes they're correct. The Data Center has been very fortunate because several of our programs are growing. New work usually comes along to make our budget less gloomy than we thought it would be. We can't ever be happy. For example, even though 1994 might be great – you're skimming along and you've got a great budget – PBA is worrying about 1995 and helping (USGS) Headquarters plan for 1996."

Despite the natural gloom and doom tendencies of budget folks in general, EDC senior staff remains hopeful because of the EDC's growth and potential. And why not? EDC's total annual budget has increased four fold – from $6.3 million in 1972 to $25.8 million in 1994 (excluding building addition funds). This dramatic growth is significant because while Federally appropriated funds remain close to recent levels, reimbursables have burst by a factor of seven – from $1.9 million in 1975 to $14 million in 1994.

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